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RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALBERT BAUER

Appeal 2008-6261
Application 08/998,507
Technology Center 3600

Oral Hearing Held: January 13, 2009

Before WILLIAM F. PATE, III, JOHN C. KERINS, and STEVEN D.A. McCARTHY, Administrative Patent Judges

ON BEHALF OF THE APPELLANT:

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The above-entitled matter came on for hearing on Tuesday, January 13, 2009, commencing at 10:23 a.m., at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia, before Kevin E. Carr, Notary Public.

PROCEEDINGS

JUDGE PATE: Good morning, Mr. Sapone.

MR. SAPONE: Good morning, Your Honor.

JUDGE PATE: We've taken time to look at this case beforehand, and so we're up to speed on it so we would like to hear your arguments concerning patentability.

MR. SAPONE: Okay. Basically the question comes down to whether or not the prior art teaches or suggests or there is a predictable result according to *KSR* of the system which Mr. Bauer has invented.

I guess to go over it briefly, what it involves is you have an interrelationship between a room temperature and a room pressure where you're going to change not just the temperature of air coming in or the amount of air coming out, but you're going to change the pressure in the room depending on what you want the temperature to be in that room. So he has an interrelationship between pressure and temperature that's not found anywhere in the prior art, and that has a dramatic effect in the results.

JUDGE McCARTHY: Counsel, turning to the last phrase of independent claim 44, is the "means for regulating an increase in pressure in at least one room relative to an outside pressure," a 112, paragraph 6 recitation?

MR. SAPONE: Yes, it's "means-for" and there are various, different actual apparatuses described in the Application which can satisfy those.

JUDGE McCARTHY: And what is the function performed by that?

MR. SAPONE: These means for regulating, they regulate an increase in pressure in the room relative to outside pressure to vary the room pressure

and correspond to the selected room temperature. So you have to take the entire phrase. It's --

JUDGE McCARTHY: What do you mean by room pressure in that recitation?

MR. SAPONE: If you look in the Application there's a graph that shows pretty well what's involved with room pressure. It's from the Application. For example, Figure 6A and 6B relate to the pressure minimum, pressure maximum. There's a range of room pressure that you can run to. When you start -- like this room for example has a certain amount of pressure in it, it has to, because there's air coming in and there's some air coming out. It's always kept at a constant in virtually every building. That's the standard way of doing it.

According to this it will have an additional controller and some apparatus which will allow you to change, when you change a set point in a temperature to increase the room temperature. You're not just going to add more air in, you're also going to build the pressure in this room following this curve. So you're going to go a P maximum, to your pressure maximum. Then when you go in the other direction it could also go back down again.

JUDGE McCARTHY: And where is that pressure measured?

MR. SAPONE: The pressure can be measured in several different locations. It could be measured in the room, in the outlet duct verses the inlet duct. There's various ways in which you can determine what that pressure is and what the room pressure is. So you have a pressure controller that's responsive to changes in your temperature. It's significantly different from what's done in every building according to conventional systems.

JUDGE McCARTHY: Right. Let's get specific about what the means for regulating, et cetera is.

MR. SAPONE: Okay.

JUDGE McCARTHY: What structure is disclosed in the Specification for carrying out that function?

MR. SAPONE: Yeah, I believe that was described in the Reply Brief. There's Figures 2 and 10 that describe the various elements that are involved in the control system and also what you're going to be using to do that. You have the temperature, heating valve for adding hot air. You have a pressure controller that also is going to control the pressure, and you've got several components here which are in the system which allow you to change the pressure when there's a change in temperature.

Now that can be -- getting into specifics, yes, you could have a supply fan that you can increase the speed on if you want to increase pressure. You could have control dampers, which are valves which will allow more or less air into the room. You also have controls on the outside, possibly a damper.

JUDGE McCARTHY: Where are those controls and where are those dampers disclosed in the Specification?

MR. SAPONE: They're described in numerous places in the application. You'll see --

JUDGE McCARTHY: Could you provide me an example?

MR. SAPONE: I believe Figure 1 had specific components. I'm sorry, I just to have find it.

JUDGE McCARTHY: Take your time, please.

MR. SAPONE: Figures 1 and 2 relate the structure with what the control system is. Figure 1 has for example a return air damper here, it has

an exhaust blower here, discharge valve. These are your air conditioning systems. These are control valves on the inlet and outlet. So in this particular case you can do the room pressure by controlling just these valves or you could do the room pressure just by adjusting the speed of the fans.

There's several ways in which you can adjust what the pressure is in here relative to the temperature. That would be valves, fans, return valve, there could be other components in it as well, but in this particular one, say this is a room like this one would be, if you close this off while you're increasing this one you supply more air than exhaust and your pressure will go up and the supply air pressure will relate to that. Then if you go in the other direction and you otherwise revise the balance on those in order to make the pressure go down when you change the room temperature to go down.

So the mechanical components are really pretty conventional. It's the control scheme that operates those which is unique because no one does that. The conventional wisdom is if you're going to put more air in here open this up because you've got to get it out. So the pressure is not --

JUDGE McCARTHY: On 52 you have identified temperature regulation and you have identified a desired value calculation and also pressure regulation.

MR. SAPONE: Right.

JUDGE McCARTHY: Are those programmed general purpose computers or are those specialized controllers?

MR. SAPONE: No, they can be a lot of different things. That's the thing about the system. You could have a microprocessor control this, you could have --

JUDGE McCARTHY: Well, what's disclosed in the specification, sir?

MR. SAPONE: These are just pressure regulators. This is a pressure regulator, these are like analog components, because at the time I believe this was structured for analog components. You can do it in --

JUDGE McCARTHY: Is there any disclosure of the circuitry or other structure of the analog components?

MR. SAPONE: It describes -- all of these components are conventional components known and available in the art. We're not inventing a pressure regulator, we're not inventing a pressure controllers, we're using --

JUDGE McCARTHY: Yes, sir, but we do need to determine what the corresponding structure in the specification is.

MR. SAPONE: Sure, and it's all described in the specification. You have pressure regulators, which are a well known component. We have temperature regulators that are well known components. We have control valves that are well known components. All of these things are just used in a way which hasn't been done before. You're taking a pressure signal and a temperature signal to get the signal to the pressure regulator to adjust the air in the room. We have them on the system now, we have them in other buildings.

These things -- every component on here exists. It's the way in which you do this pressure calculation in order to adjust that pressure to change the room pressure that's different. You don't have to rip out an entire system to put this in, for example in a conventional building. All you have to do is

realign the components and the signals you're using to generate different signals going out so that you get the effect.

JUDGE McCARTHY: So this is something that could be implemented in any -- in any existing system that had components that would perform these functions?

MR. SAPONE: You do have to do some retrofitting because you have to change, you may have to change fans to go to variable speed fans in order to get your pressure changes. You may have to change the way the controllers are set up for the particular valves.

But Mr. Bauer has actually put these in and retrofitted some existing systems. He recently did one in Australia where they had a conventional building where they had a problem. The Australian Government did an investigation. They did a conventional system which had seven air handlers and they were having problems --

JUDGE McCARTHY: Counsel, where is this in the record?

MR. SAPONE: It's not in the record, Your Honor, but since we're talking about results I thought it was relevant.

JUDGE McCARTHY: Please stick to the record, sir.

MR. SAPONE: Well, in the record Mr. Bauer put in his declaration the fact of the results in retrofitting with the Munich Opera House and also in the Johannes Kepler University in Linz, Austria. He came in and he described also to the Examiner how they retrofitted this to the existing system and how because of the way it was realigned and with his control system they were able to save 47 percent in the cost savings. That's in the record, okay.

So it has been proven that it does work, it can be retrofitted, and it has been retrofitted in several locations successfully.

JUDGE McCARTHY: Counsel, if we were to go about determining whether or not Johannssen or -- well, Johannssen has a means for regulating an increase in pressure, et cetera, what structure would we compare Johnannssen's structure against?

MR. SAPONE: Johnannssen's structure is a dead band controller. I mean, it is looking at room pressure but it's doing it in a way in which you want to narrow the changes in pressure within a room. So it's going to make incremental adjustments into the room's changes. It may inspect valves or motors, but the whole purpose of Johannssen is to have a control system that doesn't vary, that keeps the pressure constant over a wide range of volume of flow, because most buildings are cooled with volume flow. There's a huge amount of volume. You increase volume and so you have a lot of out volume. They want to make sure they keep the pressure within a very, very narrow band. That's why that's a narrow band controller, Johannssen.

As I said before, pressure controllers exist but the pressure controller doesn't have a means to take into account a temperature signal coming in and telling it to do something different. Even if it did it's not really that kind of controller. It's trying to just basically narrow the oscillations, and pressure in the room is trying to keep it as close as possible.

JUDGE McCARTHY: But counsel, doesn't column 4 of Johannssen teach controlling the dampers by means of thermostats which would presumably be checking the temperature in the room or reacting to the temperature in the room?

MR. SAPONE: I'm sorry, where -- you're in column 4?

JUDGE McCARTHY: Column 4, lines 36 to I believe it was 47 were cited by the Examiner.

MR. SAPONE: 34 through 46? I'm sorry.

JUDGE McCARTHY: Column 4, starting line 36, that paragraph.

MR. SAPONE: (Examining) Well, I think this really confirms what I was telling you already, that temperature control loops are not part of the pressure control system of the present invention. In other words they control pressure and they don't look at temperature at all. There's -- when you increase your thermostat, turn it up, more air, less air, whatever you're going to do the dead band controller is not going to let the group pressure in this room change no matter -- you can turn it down to zero or put it up to a hundred.

JUDGE PATE: Isn't that regulation?

MR. SAPONE: I'm sorry?

JUDGE PATE: The claim is a means for regulation. It doesn't let the pressure change and it looks like it's being regulated.

MR. SAPONE: But to do what? You can't just take the means forward out to do what, to vary the room pressure in correspondence to room temperature? You can't ignore what the --

JUDGE PATE: Yes, but it varies the room pressure in accord to the pressure outside.

MR. SAPONE: You've got to complete the phrase. To vary the room pressure in correspondence to the selected room temperature. This controller, this means forward, is going to actively change room pressure because of what you're going to do to that thermostat. It's going raise it, it's going to lower it depending on what it is that you're doing, and by doing that

you change the pressure in the room which dampens the effects that you have with a common system. You eliminate entirely cold spots and hot spots. You get an even heating effect, you get energy savings because you don't need as much air, you get more fresh air in.

The results of this are unpredictable. It really is totally unpredictable. There would be great gains you get from doing this simple little step. It may seem like not much but it makes a dramatic difference in energy savings and also in C02 content in the air. It's very small but it has major effects and it's totally unpredictable. You would never find anything in any of these which even suggests that maybe should do that.

Should we vary the pressure in correspondence to the selected temperature? Where is it? It's nowhere to be found because nobody does it because it's not what you want to do. The standard conventional wisdom is just as I've shown in the drawing. You want to keep that pressure. Your volume is going to change but you're going to -- whatever is going in is coming out. You're not going to change pressure, and not only that we're going to put Johannssen on there and we're going to make that even less, so there's even less variation no matter what you do to temperature.

So it's going in a complete opposite direction and you can't get to where Mr. Bauer has with a means for regulation to actually vary control, be that room pressure and correspondence to the selected room temperature.

JUDGE McCARTHY: Are you saying then that Johannssen does not perform the function that's performed by the means for regulating?

MR. SAPONE: No, it doesn't. It can't because it doesn't have a temperature input. There's nothing in it to say, uh oh, I've got a signal to increase temperature. I've got to change this pressure and make it actually

go up or down. It's not there. It's an independent system. It's an independently controlled variable. You've got this controller to control pressure, but something else is going to control temperature. If there's some kind of incidental effect with the temperature, with the pressure, this pressure sensor will actually dampen it out. It will take away any increases in pressure whatsoever. So you've got to just stay constant the whole time.

So it can't do what this "means-for" requires. And the only other thing I would say is the effects have been proven, it does actually reduce energy. In this particular study, which I know is not on the record, they were able to go from having seven air handlers in the system to two with a comparable cooling. They reduced CO2 levels and they saved 50 to 60 percent on their energy. It has a dramatic effect, which surprised me, it surprises everyone, which is why we brought Mr. Bauer when he came over for the interview, brought the facilities manager from the University to actually confirm, yes, the University is getting these results, it does work the way he says it's going to.

So there's nothing in any of these patents that go anywhere near that and certainly the result is not predictable in any way, shape or form.

JUDGE PATE: Okay. We don't have any questions more for you, sir. So we're going to take this case under advisement.

MR. SAPONE: Thank you very much for your time. I appreciate it.

(Whereupon, at approximately 10:33 a.m., the proceedings were concluded.)